

a heat radiation pipe for radiating heat which is supplied by the cooling liquid passing through said heat receiving jacket; and

a passage for circulating the cooling liquid passing through said heat radiation pipe into said pump so that said cooling liquid circulates within a closed flow passage, wherein

$\Delta V_s$  is equal to or greater than  $\Delta V_p$ , with the inner volume change when said pump emits the cooling liquid therefrom being represented by  $\Delta V_p$ , the pressure caused by said volume change being represented by  $P$ , and the volume change due to said pressure  $P$  which occurs in the flow passage of the cooling liquid, other than in said pump, being represented by  $\Delta V_s$ .

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8. (twice amended) A personal computer, comprising:

a main body including a semiconductor element and a signal input portion;  
a display device having a display portion connected with said main body through a movable mechanism; and

a liquid cooling system, including:

a pump for supplying cooling liquid;

a heat receiving jacket disposed within said main body and supplied with said cooling liquid, said heat receiving jacket being positioned to receive heat generated within said semiconductor element;

a heat radiation pipe being disposed on a back surface of said display portion of said display device for radiating heat which is supplied by the cooling liquid passing through said heat receiving jacket;

a passage for circulating the cooling liquid passing through said heat radiation pipe into said pump so that said cooling liquid circulates within a closed flow passage; and

an accumulator connected to said closed flow passage and having a supply opening for supplying said circulating cooling liquid therethrough, a discharge opening for discharging said cooling liquid therethrough, and a chamber that maintains gas and said cooling liquid therein, wherein

the amount of the cooling liquid maintained within said accumulator changes in response to emission of the cooling liquid from said pump.

9. (twice amended) A personal computer as defined in the claim 8, wherein  $\Delta V_s$  is equal to or greater than  $\Delta V_p$ , with the inner volume change when said pump emits the cooling liquid therefrom being represented by  $\Delta V_p$ , the pressure caused by said volume change being represented by  $P$ , and the volume change due to said pressure  $P$  in the flow passage of the cooling liquid, other than said pump, being represented by  $\Delta V_s$ .

10. (twice amended) A personal computer, comprising:

- a semiconductor element;
- a signal input portion;
- a display device; and
- a liquid cooling system, including:
  - an emission pump for supplying cooling liquid;
  - a heat receiving jacket supplied with said cooling liquid and positioned to receive heat generated within said semiconductor element;
  - a heat radiation pipe for radiating heat which is supplied by the cooling liquid passing through said heat receiving jacket;
  - an accumulator having a supply opening for supplying said circulating cooling liquid therethrough, a discharge opening for discharging said cooling liquid therethrough, and a chamber for maintaining gas and said cooling liquid therein; and

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a passage for circulating the cooling liquid passing through said heat radiation pipe into said pump so that said cooling liquid circulates within a closed flow passage, wherein

the amount of cooling liquid maintained within said accumulator changes in response to emission of the cooling liquid from said pump.

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12. (amended) A liquid cooling system as defined in claim 2, wherein plural pumps are connected in series in said flow passage.

13. (amended) A liquid cooling system as defined in claim 12, wherein two of said plural pumps are operated to respectively produce emission of said cooling liquid that are 180° different in phase from each other.

14. (amended) A liquid cooling system as defined in claim 13, wherein said pumps emit the cooling liquid by the reciprocal movement of the member in said pump is caused by bending or flexible of a diaphragm.

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#### **REMARKS**

By the above amendment, claims 5, 8-10 and 12-14 have been amended to correct errors of a grammatical nature and to provide proper antecedent basis.

Also submitted herewith is an Information Disclosure Statement.  
Consideration of this document is respectfully requested.

In view of the above amendments and remarks, applicants request examination of the application and favorable action thereof.

To the extent necessary, applicant's petition for an extension of time under 37 CFR 1.136. Please charge any shortage in the fees due in connection with the filing